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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/594,424

09/26/2006

Habin Lee

36-2024

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23117

7590

07/06/2009

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EXAMINER

COONEY, ADAM A

ART UNIT

PAPER NUMBER

2444

MAIL DATE

DELIVERY MODE

07/06/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                   |  |
|------------------------------|--------------------------------------|-----------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/594,424 | <b>Applicant(s)</b><br>LEE ET AL. |  |
|                              | <b>Examiner</b><br>ADAM COONEY       | <b>Art Unit</b><br>2444           |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-15 and 17-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-15 and 17-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This action is responsive to the amendment filed on 3/06/2009. Claims 1, 3, 4, 9-12, 14, 15, 20 and 23 have been amended. Claims 5 and 16 are cancelled. Therefore, Claims 1-4, 6-15, and 17-25 are pending.

### ***Response to Arguments***

2. Applicant's argument, see page 14, with respect to the objection of the specification has been fully considered and is persuasive. The examiner notes that the specification has been amended. Therefore, the objection is withdrawn.

3. Applicant's arguments, see page 14, with respect to the rejection of claims 1-9 under 35 U.S.C 101 have been fully considered and are persuasive. Therefore, the rejection is withdrawn.

4. Applicant's arguments, see pages 15-18, with respect to the rejection of claims 1-25 under 35 U.S.C 102 (a) have been fully considered but are not persuasive. Applicant asserts that the FAS reference does not teach, after having received an unknown conversation model, the software agent identifies ontology items used in the conversation model; determines, for each identified ontology item, whether the software agent can nevertheless provide or otherwise process the identified ontology item; and if it can, then executes the conversation model. In particular the applicant states that FAS does not teach any means for a software agent to process a received service request in terms of a conversation model that is not already known to or stored by the software agent. Further, the applicant states that in FAS a software agent receives a service request in terms of a new conversation model and that the new conversation model

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becomes already known by and stored at the software agent, hence the software agent can process the service request in the conventional fashion. However, the examiner disagrees with these assertions. According to FAS, in a conversation policy, transitions occur when a message is sent by one agent to another. Message types are request, inform, and query. A message may accompany one or more parameters that are associated with ontology items. An example would be an inform message may have a parameter associated with the orderConfirm ontology item (see FAS section 3.3 first paragraph). Also, FAS teaches an example of a buyer agent searching and finding a supplier agent providing a desired service with an unknown conversation policy, such as OrderRequestNewCPU. Since the buyer agent does not know the conversation policy the buyer agent sends a query to the supplier agent about the policy. If the supplier agent accepts the query and informs the buyer agent of the policy, the buyer agent stores it. Meaning, the conversation policy is not already known to the buyer agent and the policy isn't stored until after the buyer agent sends a query about the policy (see FAS section 3.4 second paragraph). Further, FAS teaches agent systems are able to handle multiple conversation policies, not knowing previously what messages and parameters will come in and go out (see FAS section 3.5 first paragraph lines 16-19, therefore handling unknown policies). Therefore, FAS does teach the limitation "the conversation model being unknown to the software agent". And further, FAS teaches the remaining limitations recited in the independent claims 1 and 10, as shown in the rejection below. As such, the rejection is maintained.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

**Claims 1-4, 6-15 and 17-25 are rejected under 35 U.S.C. 102(a) as being anticipated by Flexible Agent Systems for Change Adaptation in Supply Chains, Ahn et al, 2003 (hereinafter FAS).**

5. Regarding independent claims 1 and 10, the FAS reference teaches a means and a method of communicating between software agents in a multi-agent system, each software agent being provided within the operating environment of at least one computer-programmed processor having a CPU communicating with memory and input/output ports (see FAS Abstract, section 4.1 first paragraph lines 14-17, Figures 2, 14 and 15; the system is computer-based used for electronic business via the internet and therefore it is inherent a processor is used in order for the system to execute and moreover the computer being used will have memory and input/output ports), said means and method, comprising using at least one computer-programmed processor to: receive, at a software agent of said system, a service request in terms of a conversation model (conversation policy model) defining a sequence of executable tasks for implementing a role in a conversation between agents, the conversation model being unknown to the software agent residing at its respectively associated processor (see section 2.3 lines 12-15, section 3.3 first paragraph and section 3.4 second paragraph; conversation policy is partially ordered sequences of messages that guide and restrict the exchange of agent messages for specific objectives,

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unknown conversation policy, buyer agent sends a query about it); identify ontology items used in the unknown conversation model in respect of said role (see section 3.3 first paragraph lines 8-22, section 3.4 second paragraph and Figure 6; a message is accompanied by one or more parameters that are associated with the ontology items, therefore the ontology item is identified by parameters of the message); determine, for each identified ontology item of the unknown conversation model, whether the software agent is nevertheless operable to provide or to process the identified ontology item (see section 3.3 second paragraph lines 6-8 and section 3.5 first paragraph lines 16-22; by using the explicit parameters the agent can understand incoming messages clearly and be able to handle messages even when parameters were not previously known); and in the event that the result of said determining is positive, execute the conversation model to implement said role in the conversation (see section 3.3 third paragraph, section 3.4 second paragraph lines 16-17 and Figure 6; shows conversation policies defined by the conversation policy model being executed, i.e. two agents starting communication for actual order fulfillment service using the OrderRequestNewCPU policy).

6. Regarding claims 2 and 13, the FAS reference teaches all the limitations of claim 1 and 10, as discussed above. Further, FAS teaches wherein the conversation model includes one or more message models defining, in respect of a particular service, messages referenced in the conversation model (see section 3.3 first paragraph lines 9-13 and second paragraph lines 18-21; message types are request, inform and query, also messages are classified in 3 categories, i.e. activity type, reference for query type and proposition type).

7. Regarding claims 3 and 14, the FAS reference teaches all the limitations of claims 1 and 10, as discussed above. Further, FAS teaches wherein said determining step and means

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comprises: to identify at least one behavior model which, when executed by the agent, is operable to provide or to process the identified ontology item (see section 3.3 second paragraph lines 6-8 and section 3.5 first paragraph lines 16-22; by using the explicit parameters the agent can understand incoming messages clearly and be able to handle messages even when parameters were not previously known); and to identify, in respect of a particular service, a message model defining each message referenced in the conversation model (see section 3.4 second paragraph; query message model).

8. Regarding claims 4 and 15, the FAS reference teaches all the limitations of claims 3 and 14, as discussed above. Further, FAS teaches wherein identifying said at least one behavior comprises determining whether said at least one behavior is operable to generate the ontology item as an output ontology item, and wherein if said at least one behavior requires an input ontology item, determining whether the input ontology item is available in a fact base (internal knowledge) of the agent or may be produced as an output ontology item by another behavior available to the agent (see section 3.3 second paragraph lines 6-16 and section 3.5 first paragraph 16-33).

9. Regarding claims 6 and 17, the FAS reference teaches all the limitations of claims 1 and 10, as discussed above. Further, FAS teaches wherein the conversation model defines a plurality of roles in an inter-agent conversation (see section 3.3 first paragraph lines 17-22; initiator and counterpart roles), each role comprising a linked sequence (transitions) of tasks which when executed by a software agent implement corresponding stages in a conversation (see section 3.3 first paragraph lines 6-11) , and wherein a task is linked to another task in the role by means of a connector representative of either the receipt of a message from, or the output of a message to

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another agent implementing a complementary role defined in the conversation model (see section 3.5 first paragraph lines 16-33; conversation manager provides links for task handlers).

10. Regarding claim 7, the FAS reference teaches all the limitations of claim 1, as discussed above. Further, FAS teaches wherein the software agent implements an initiator role defined in the conversation model and another software agent implements a responder role defined in the conversation model (see section 3.3 first paragraph lines 17-22; initiator role and counterpart role).

11. Regarding claims 8 and 19, the FAS reference teaches all the limitations of claims 1 and 10, as discussed above. Further, FAS teaches wherein a task, when executed by the software agent, causes the software agent to receive one or more input messages and to generate one or more output messages (see section 3.3 third paragraph lines 14-20 and Figure 6; for OrderRequestNewCPU the supplier agent sends a queryRef message to the buyer agent, the buyer agent then sends an inform message).

12. Regarding claims 9 and 20, the FAS reference teaches all the limitations of claims 1 and 10, as discussed above. Further, FAS teaches wherein step and means of executing the conversation model comprises selecting, for each task to be executed in respect of said role, one or more behaviors which, when executed by the agent, implement the task (see section 3.3 second paragraph lines 6-17, 22-29 and Figure 6; if agent is able to determine the intentions of the counterpart agent clearly and understand the message contents, it is inherent that the agent selects a behavior to implement the task, since it also is able to prepare an outgoing message).

13. Regarding claim 11, the FAS reference teaches all the limitations of claim 10, as discussed above. Further, FAS teaches wherein said means for executing the conversation model



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comprise: scheduling means for selecting a task to be executed in the conversation model (see section 4.1 first paragraph lines 7-10; conversation manager controls execution of conversations and provides rules and interfaces that trigger task handlers, therefore once a task handler is triggered a task will be executed); and a task manager arranged with access to a library of behaviors to select one or more behaviors to be executed to implement the selected task (see Figure 9 and Figure 13; task handlers has access to a database, also task handlers have access to conversation policy repertoire of the agent).

14. Regarding claim 12, the FAS reference teaches all the limitations of claim 11, as discussed above. Further, FAS teaches wherein the software agent further comprises a fact base for storing ontology items (see section 3.3 second paragraph lines 6-10 and section 3.4 second paragraph line 15; buyer agent stores in its repertoire), and wherein behaviors in said library of behaviors are arranged with access to said fact base to obtain input ontology items (see section 3.5 second paragraph lines 7-9, the third paragraph and Figure 9; rules generate new facts and are triggered by incoming messages, as a result interfaces are generated as new intentions or beliefs, the updated beliefs and intentions will trigger a task handler).

15. Regarding claim 18, the FAS reference teaches all the limitations of claim 10, as discussed above. Further, FAS teaches wherein the software agent, when executed, is arranged to implement an initiator role defined in the conversation model (see section 3.3 first paragraph lines 17-22; initiator role).

16. Regarding claim 21, the FAS reference teaches all the limitations of claim 11, as discussed above. Further, FAS teaches wherein said scheduling means are responsive to receipt, at a message queue, of a message defined in the conversation model in respect of a task to be

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executed, to schedule execution of said task to be executed (see section 4.1 first paragraph lines 7-10 and Figure 9; conversation manager controls execution of conversations and provides rules and interfaces that trigger task handlers, therefore once a task handler is triggered a task will be executed, also it is implied that if the conversation manager receives incoming messages that there would be a means to store the messages in order to control execution of the conversations).

17. Regarding claim 22, the FAS reference teaches all the limitations of claim 2, as discussed above. Further, FAS teaches wherein said one or more message models comprise an indication of a language, ontology, rules for locating one or more recipients of a respective message, rules for creating one or more ontology items used within the contents of the message, and attributes of the message (see section 3.3 first paragraph lines 8-13 and section 3.5 second paragraph; a message has language types such as request, inform and query also parameters accompany the messages which identify ontology items, further there are sets of rules that handle incoming and outgoing messages).

18. Regarding claim 23, the FAS reference teaches all the limitations of claim 3, as discussed above. Further, FAS teaches wherein said at least one behavior model defines one or more input ontology items, one or more output ontology items, and the location of an executable file that implements the respective behavior (see section 3.3 second paragraph lines 6-10; by using the parameters agents can understand the incoming message contents, i.e. the input ontology item, and prepare outgoing messages, which would include the output ontology item, it is inherent that the agent would have a location for an executable file in order to execute the outgoing message).

19. Regarding claim 24, the FAS reference teaches all the limitations of claim 1, as discussed above. Further, FAS teaches wherein the conversation model, in defining a role to be executed,

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identifies the name of the role and, for each task defined in the role, one or more input messages to be received and one or more output messages (see section 3.3 first paragraph lines 17-22 and Figure 6; in the conversation policy model transitions, messages from an agent to another, are associated with roles such as initiator role or counterpart role).

20. Regarding claim 25, the FAS reference teaches all the limitations of claim 10, as discussed above. Further, FAS teaches a multi-agent system comprising a plurality of computers linked by means of a communications network (see section 4.1 first paragraph lines 14-17) , at least one of said computers being a intermediary server computer for storing conversation models in respect of one or more service providers (see section 3.4 second paragraph lines 11-15; agent stores conversation policy) , and wherein at least one of said computers is operable to execute a software agent as defined according to claim 10 to implement a conversation as defined in a conversation model supplied by said intermediary server computer (see Figure 6; conversation policies being executed by initiator and counterpart agent roles).

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lee et al. (U.S. 2006/0225064 A1) is relevant because it teaches a flexible multi-agent system architecture.

***Conclusion***

22. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

23. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADAM COONEY whose telephone number is (571)270-5653. The examiner can normally be reached on Monday-Thursday and every other Friday from 730AM-5PM..

25. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William C. Vaughn can be reached on 571-272-3922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

26. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. C./

Examiner, Art Unit 2444

6/26/2009

/William C. Vaughn, Jr./

Supervisory Patent Examiner, Art Unit 2444